

**ALAMEDA NAVAL AIR STATION**  
**ADDENDUM TO FINAL HEALTH AND SAFETY PLAN**  
**RI/FS PHASES 2B AND 3**  
**IMF SITE EE/CA**

FINAL  
HEALTH AND SAFETY PLAN  
REMEDIAL INVESTIGATION/FEASIBILITY STUDY  
PHASES 2B AND 3  
INTERMEDIATE MAINTENANCE FACILITY SITE  
ENGINEERING EVALUATION/COST ANALYSIS

DATED 01 MAY 1992

IS ENTERED IN THE DATABASE AND FILED AT  
ADMINISTRATIVE RECORD NO. **N00236.000819**

This addendum addresses potential task specific health and safety hazards to be encountered during the continued investigation of Site 4 (Building 360) and Site 5 (Building 5) at the NAS Alameda. During the Phase 2B and 3 field investigation of the Site 4 (Building 360) plating shop, elevated metal concentrations were detected in samples from the Plating Shop interior. During field investigation of Site 5 (Building 5) for Phases 2B and 3, it was brought to the attention of the Navy that the approved work plans did not include sampling within Building 5 where a metal plating shop is located. Proposed work will include additional interior surface wipe sampling at Site 4 to characterize the extent of contamination from previous plating operations. Twelve samples will be collected from the interior of the Building 360 plating shop. Four discrete scrape samples will be collected from the floors, four wipe samples will be collected from the walls, and four wipe samples will be collected from the rafters or other overhead fixtures. All 12 samples will be analyzed for Hazardous Substance List (HSL) metals plus hexavalent chromium and total cyanide. Also, at Site 5 ten boreholes will be drilled in the plating shop floor to determine the extent of potential soil contamination. Ten boreholes will be drilled through the Building 5 plating shop floor, five on each side of the dividing wall separating the cyanide processes from the chromium processes. Eight of the boreholes will be advanced to a depth of 5 feet, anticipated to correspond to the capillary zone above the water table. The two remaining boreholes will be drilled to depth of 23 feet adjacent to the 18-foot deep sumps used to drain the concrete sub-floor. All boreholes will be advanced with hollow stem augers.

Two soil samples will be collected from each of the eight shallow borings, for a total of 16 samples. A total of eight soil samples will be collected from the two deep borings located adjacent to the sumps. All soil samples will be analyzed for HSL metals plus hexavalent chromium, cyanide, pH, and volatile organic compounds (VOC) as identified in Table 2. In addition, one sample per borehole, chosen at random, will be analyzed for total organic carbon (TOC) and Total Solids (TS, also reported as moisture content).

One grab groundwater sample will be collected from each of the ten boreholes. If groundwater is not encountered in the shallow borings above a depth of 5 feet, the borings will be continued to approximately 2 feet below the water table. The groundwater samples will be analyzed for HSL metals plus hexavalent chromium, cyanide, and VOC.

Twelve samples will be collected from the interior of the Building 5 plating shop. Four discrete scrape samples will be collected from the floors, four wipe samples will be collected from the walls, and four wipe samples will be collected from the rafters or other overhead fixtures. All 12 samples will be analyzed for HSL metals plus hexavalent chromium cyanide. Site descriptions may be found in Section 1.2 of the original HSP.

Health and safety concerns associated with wipe sampling at Site 4 include:

- Potential exposure to heavy metals in particular hexavalent chromium and lead;
- Working at heights, including ladder safety.
- Potential solvent exposure during wipe sampling

To reduce potential heavy metal exposure and solvent exposure, all employees involved with sampling will be in Level C PPE, including a full or half face respirator with organic vapor cartridge and HEPA filters as outlined on Table 5-1 and Section 5.1. To assure safety from additional physical hazards, employees will use extreme caution when working at an elevation. Ladders will be inspected prior to each use for unusual wear or broken parts. Employees will observe the following safe practices when using ladders (29 CFR 1926.951(c)):

- when using lean type ladders placing ladder so that horizontal distance from base of the ladder to the vertical support is approximately one quarter the ladder length;
- assuring the ladder has even, stable positively securing surfaces both on the top and the bottom;
- always extending the ladder at least 3 feet beyond the top landing;
- never allowing horseplay on or around the ladder; and
- never using metal or conductive ladders near energized lines or equipment.

The health and safety concerns associated with soil boring and sampling at Site 5 include:

- Potential heavy metal hazard;
- Potential volatile organic contamination (VOC);
- Physical hazard of drilling operations; and
- potential solvent exposure during wipe sampling.

To reduce heavy metal and VOC exposure, employees will begin sampling in Level C PPE until air monitoring determines an appropriate upgrade or downgrade as outlined in Sections 5.1 and 6.1 and Tables 5-1 and 6-1. To reduce the physical hazards involved with soil boring, all precautions outlined in Sections 1.3.2 and 1.4.2.5 of the original Health and Safety Plan will be adhered to.

With the continued use of the original Health and Safety Plan and these additional precautions, the continued investigation should progress safely.

November 2, 1992

Fred L. Stanley, Ph.D., CIH  
Senior Health and Safety Scientist  
PRC Environmental Management, Inc.  
120 Howard Street, Suite 700  
San Francisco, California 94105

2738.0670/3.1.3

SUBJECT: Amendment to Naval Air Station (NAS) Alameda Final Health and Safety Plan - RI/FS Phases 2B and 3 - IMF Site EE/CA, Modification 0001.

Dear Dr. Stanley:

James M. Montgomery, Consulting Engineers, Inc. (JMM) is performing additional sampling activities in the cyanide portion of the Site 5 plating shop at NAS Alameda. The attached memorandum, concerning the additional work is intended as an amendment to the final Health and Safety Plan.

If you have any questions regarding this amendment please contact me at (818) 568-6946. Otherwise please sign the enclosed review sheet and return it to Donna Courington of JMM at 365 Lennon Lane, Walnut Creek, California 94598.

Thank you for your attention to this matter.

Sincerely,

JAMES M. MONTGOMERY,  
CONSULTING ENGINEERS, INC.

Beth S. Hochheiser, CIH  
JMM Project Health and Safety Manager

cc: Donna Courington

**REMEDIAL INVESTIGATION/FEASIBILITY STUDY**

**FINAL HEALTH AND SAFETY PLAN**

**ADDENDUM**

ALAMEDA NAVAL AIR STATION  
ALAMEDA, CALIFORNIA

CONTRACT TASK ORDER NO. 0121  
MODIFICATION NO. 0001  
CONTRACT NO. N62474-88-D-5086

Prepared For

Department of the Navy

Prepared by:

\_\_\_\_\_  
Beth S. Hochheiser, CIH

\_\_\_\_\_  
Date

Approvals:

JMM Project Manager:

\_\_\_\_\_  
Ken Leung

\_\_\_\_\_  
Date

JMM Program Health and  
Safety Coordinator:

\_\_\_\_\_  
Peter Carroll, CIH

\_\_\_\_\_  
Date

Review:

PRC CLEAN Health and Safety  
Program Manager:

\_\_\_\_\_  
Fred Stanley, Ph.D., CIH

\_\_\_\_\_  
Date

**JAMES M. MONTGOMERY, CONSULTING ENGINEERS, INC.**

**MEMORANDUM**

**TO:** Donna Courington **DATE:** November 2, 1992  
**FROM:** Beth Hochheiser *BH* **CLIENT:** PRC-Navy  
**SUBJECT:** Amendment # 2 to NAS Alameda **JOB No.:** 2738.0670  
HSP Site 5, Building 5 - Plating Shop

**1.0 INTRODUCTION**

**Building 5 - Plating Shop**

The plating shop is an area where aircraft parts were plated using both cyanide and chromium processes. It was closed in June of 1990, when a replacement facility was opened in another part of the base. The plating shop is currently inactive with the exception of two rinse tanks. These tanks are used to rinse parts that have been plated by hand in the selective plating shop. The plating shop is locked and generally the only personnel in the plating shop are selective plating shop employees using the rinse tanks.

The Building 5 plating shop is constructed with a raised wooden floor, approximately 3 feet above a concrete sub-floor. A dividing wall in the concrete sub-floor separates the cyanide process line from the chrome process line. Two 18 foot deep sumps, one located on either side of the dividing wall, were used to collect wastewater discharged from the plating process lines.

The scope of work for the previous investigation in the plating shop included drilling ten boreholes through the Building 5 plating shop floor; five on each side of the dividing wall separating the cyanide processes from the chromium processes. Eight of the boreholes were to be advanced to a depth of 5 feet, the anticipated level of the water table. The two remaining boreholes were to be drilled to a depth of 23 feet adjacent to the 18 foot deep sumps used to drain the concrete sub-floor.

At the time of the previous investigation in the Building 5 plating shop, the pump in the cyanide process line sump was not functioning. Approximately 6 inches of water and/or plating fluids were present on the concrete sub-floor on the cyanide

side of the dividing wall. Thus, only the borings on the chromium side of the dividing wall were completed.

## 2.0 CURRENT CONDITIONS

### 2.1 Results of the Previous Investigation

Results of the wipe and scrape samples taken from inside the plating room indicated elevated levels of both chromium and cyanide as well as other metals, such as cadmium, lead, nickel and zinc. Relatively low concentrations of 1,1,1-trichloroethane and chloroethane were detected in the soil borings collected in the plating shop. Chloroethane, 1,1-dichloroethane, 1,1-dichloroethylene, and 1,1,1-trichloroethane were detected in groundwater samples beneath the plating shop in significant concentrations. Metals and cyanide were also detected in soil borings and groundwater samples beneath the plating shop.

Details concerning the results of the previous investigation can be reviewed in Data Summary Report Background and Tidal Influence Studies and Additional Work at Sites 4 and 5 Volume 1 or 2, Draft Final, August 4, 1992, prepared by JMM for NAS Alameda.

### 2.2 Existing Site Conditions

NAS Alameda personnel have drained the solution from the cyanide portion of the plating room, and are removing the remaining process equipment and tanks.

## 3.0 HEALTH AND SAFETY HAZARD ANALYSIS

### 3.1 Indoor Drilling Hazards

Drilling inside of an enclosed building poses the hazard of drill rig exhaust build-up and carbon monoxide exposure. The drilling operation will be monitored with a combination combustible gas/oxygen meter/carbon monoxide monitor. In the event that action levels are exceeded for carbon monoxide exposure, flexible ducting or fans will be used to direct drill rig exhaust outdoors.

### 3.2 Chemical Exposure Hazards

Some of the contaminants identified at Site 5 were not included in the original chemical toxicity evaluation performed in the Final health and safety plan for NAS Alameda. The attached table presents information

on the contaminants of concern at Site 5 based on the results of the previous investigation from the plating shop.

Of particular concern is exposure to cyanide. To ensure proper control of potential cyanide exposure, a cyanide-specific toxic gas monitor will be used continuously during the investigation procedures.

#### 4.0 PERSONAL PROTECTIVE EQUIPMENT

Personnel will begin the Site 5 investigation in EPA Level C personal protective equipment with full-facepiece air purifying respirators equipped with combination organic vapor/acid gas/HEPA cartridges. These cartridges will be useful in protecting the field team members from exposure to organic solvents detected in the soil and groundwater, as well as to particulate contamination, including concrete contaminated with cyanide.

These personal protective equipment requirements extend to any concrete coring companies sub-contracted to cut through the concrete prior to drilling.

In the event that action levels, presented below, are exceeded, personnel will upgrade to EPA Level B personal protective equipment. JMM will begin the field program anticipating Level C conditions for the duration of the project. However, in the event that Level B protection is required, a JMM sub-contracted company, equipped with the appropriate Level B equipment, will be retained on stand-by status. During the transition from Level C to Level B, no investigation activities will take place.

#### 5.0 AIR MONITORING EQUIPMENT

##### 5.1 Photoionization Detector

A photoionization detector equipped with an 11.7, or equivalent, electron volt (eV) probe will be needed to screen the workplace for the chlorinated organic compounds detected at the site.

Due to the low occupational health exposure limit and poor warning properties of 1,1-Dichloroethylene, Draeger Tubes will be used to supplement PID readings. The Draeger Tube for Vinyl Chloride 1/a (no. 678031) can be used to detect 1,1-Dichloroethylene. Readings of 5 ppm on the PID, sustained in the worker breathing zone for 15 minutes will be cause to collect a Draeger Tube sample. A reading of 1 ppm on the Draeger Tube will be cause to initiate Level B personal protective equipment (PPE).

Action levels to halt work or upgrade to Level B PPE, when 1,1-Dichloroethylene is not involved, are PID readings of 50 ppm, sustained in the worker breathing zone for 15 minutes.

#### 5.2 Combination Combustible Gas Indicator/ Oxygen Monitor/ Carbon Monoxide Monitor

This combination meter will be used primarily to monitor exhaust from the drill rig inside the building.

Combustible gas readings in excess of 10 percent of the lower explosive limit (LEL) will cause work to stop. Re-entry will be contingent upon identification of the gas source and an appropriate control measure.

Oxygen monitor readings below 20 percent will cause work to stop. Re-entry will take place with additional ventilation to the work site.

Carbon Monoxide readings of 15 ppm will cause work to stop. Re-entry will take place with additional ventilation or ducting of exhaust to the outside environment.

#### 5.3 Cyanide Monitor

A Monitox Toxic Gas Monitor, Model B-E030004, or equivalent, will be used to continuously survey the work site for hydrogen cyanide gas. Sustained readings, 10 minutes, of up to 3 ppm will be cause to stop work. Re-entry will be contingent upon suppression of the source of the gas to below measurable readings, or upgrade to Level B PPE.

#### 5.4 Particulate Monitoring

Dust readings in excess of 2.5 mg/m<sup>3</sup> will be cause to implement dust suppression measures, such as spraying the area with a Hudson sprayer with water. Dust readings in excess of 10 mg/m<sup>3</sup> will be cause to halt work and reevaluate.

### 6.0 CONCLUSION

This amendment is intended to be used along with the original final health and safety plan prepared and approved for the RI/FS Phases 2B and 3 at Alameda Naval Air Station, Alameda, California.

**TABLE 1 (Amendment)**

Site	Contaminant	Federal - OSHA PEL (ppm)	Cal-OSHA PEL (ppm)	NIOSH REL (ppm)	ACGIH TLV-TWA (ppm)	NIOSH IDLH (ppm)	Ionization Potential (eV)	Routes of Exposure <sup>(a)</sup>	Symptoms <sup>(b)</sup>
	Chloroethane	1000	1000	Handle with caution	1000	20,000	10.97	INH, ABS, ING, CON	Incoherence, inebriation, abdominal cramps, arrhythmia, cardiac arrest, liver, kidney damage
	1,1-Dichloroethane	100	100	100	100	4,000	11.06	INH CON, ING	Central nervous system depressant, skin irritant, liver and kidney damage
	1,1-Dichloroethylene	1	1	Carcinogen	5	N/A	9.46	INH, CON, ING	Irritant to eyes, liver and kidney damage, suspect carcinogen, narcotic in high concentrations.
	Zinc	10 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	N/A	N/A	INH	Sweet metallic taste; dry throat cough; chills, fever, tight chest, dyspnea, reduced pulmonary function, headache, blurred vision, muscle cramps, lower back pain, nausea, vomiting, and fatigue.